

**BSS315P**

**OptiMOS™-P 2 Small-Signal-Transistor**

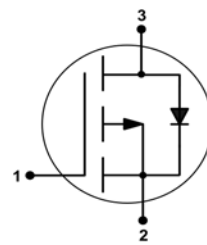
**Features**

- P-channel
- Enhancement mode
- Logic level (4.5V rated)
- Avalanche rated
- Qualified according to AEC Q101
- 100% lead-free; RoHS compliant
- Halogen-free according to AEC61249-2-21

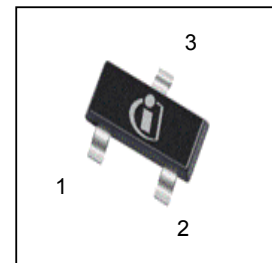


**Product Summary**

$V_{DS}$		30	V
$R_{DS(on),max}$	$V_{GS}=10\text{ V}$	150	mΩ
	$V_{GS}=4.5\text{ V}$	270	
$I_D$		-1.5	A



PG-SOT-23



Type	Package	Tape and Reel Information	Marking	Lead Free	Packing
BSS315P	PG-SOT23	H6327: 3000 pcs/ reel	YCs	Yes	Non dry

**Maximum ratings, at  $T_j=25\text{ °C}$ , unless otherwise specified**

Parameter	Symbol	Conditions	Value	Unit
Continuous drain current	$I_D$	$T_A=25\text{ °C}$	-1.5	A
		$T_A=70\text{ °C}$	-1.18	
Pulsed drain current	$I_{D,pulse}$	$T_A=25\text{ °C}$	-6	
Avalanche energy, single pulse	$E_{AS}$	$I_D=-1.5\text{ A}$ , $R_{GS}=25\text{ Ω}$	11	mJ
Reverse diode $dv/dt$	$dv/dt$	$I_D=-1.5\text{ A}$ , $V_{DS}=-16\text{ V}$ , $di/dt=-200\text{ A}/\mu\text{s}$ , $T_{j,max}=150\text{ °C}$	6	kV/ $\mu\text{s}$
Gate source voltage	$V_{GS}$		$\pm 20$	V
Power dissipation <sup>1)</sup>	$P_{tot}$	$T_A=25\text{ °C}$	0.5	W
Operating and storage temperature	$T_j$ , $T_{stg}$		-55 ... 150	°C
ESD Class		JESD22-A114 -HBM	0 (<250V)	V
Soldering Temperature			260 °C	°C
IEC climatic category; DIN IEC 68-1			55/150/56	°C



BSS315P

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	

**Thermal characteristics**

Thermal resistance, junction - ambient	$R_{thJA}$	minimal footprint <sup>1)</sup>	-	-	250	K/W
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**Electrical characteristics, at  $T_j=25\text{ °C}$ , unless otherwise specified**

**Static characteristics**

Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-11\mu A$	-2.0	-1.5	-1.0	
Drain-source leakage current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V, T_j=25\text{ °C}$	-	-	-1	$\mu A$
		$V_{DS}=-30V, V_{GS}=0V, T_j=150\text{ °C}$	-	-	-100	
Gate-source leakage current	$I_{GSS}$	$V_{GS}=-20V, V_{DS}=0V$	-	-	-100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.1A$	-	177	270	$m\Omega$
		$V_{GS}=-10V, I_D=-1.5A$	-	113	150	
Transconductance	$g_{fs}$	$ V_{DS} >2 I_D R_{DS(on)max}, I_D=-1.18A$	-	2.7	-	S

<sup>1)</sup> Performed on 40mm<sup>2</sup> FR4 PCB. The traces are 1mm wide, 70 $\mu$ m thick and 20mm long; they are present on both sides of the PCB.



BSS315P

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	

**Dynamic characteristics**

Input capacitance	$C_{iss}$	$V_{GS}=0\text{ V}, V_{DS}=15\text{ V},$ $f=1\text{ MHz}$	-	212	282	pF
Output capacitance	$C_{oss}$		-	69	91	
Reverse transfer capacitance	$C_{rss}$		-	56	84	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=-15\text{ V},$ $V_{GS}=-10\text{ V},$ $I_D=-1.5\text{ A}, R_G=6\ \Omega$	-	5.0	-	ns
Rise time	$t_r$		-	6.5	-	
Turn-off delay time	$t_{d(off)}$		-	14.3	-	
Fall time	$t_f$		-	7.5	-	

**Gate Charge Characteristics**

Gate to source charge	$Q_{gs}$	$V_{DD}=-15\text{ V},$ $I_D=-1.5\text{ A},$ $V_{GS}=0\text{ to }5\text{ V}$	-	-0.56	-	nC
Gate to drain charge	$Q_{gd}$		-	-1.2	-	
Gate charge total	$Q_g$		-	-2.3	-	
Gate plateau voltage	$V_{plateau}$		-	-2.9	-	V

**Reverse Diode**

Diode continuous forward current	$I_S$	$T_A=25\text{ }^\circ\text{C}$	-	-	-0.5	A
Diode pulse current	$I_{S,pulse}$		-	-	-6	
Diode forward voltage	$V_{SD}$	$V_{GS}=0\text{ V}, I_F=-1.5\text{ A},$ $T_j=25\text{ }^\circ\text{C}$	-	-0.86	-1.1	V
Reverse recovery time	$t_{rr}$	$V_R=10\text{ V}, I_F=-1.5\text{ A},$ $di_F/dt=100\text{ A}/\mu\text{s}$	-	8.2	-	ns
Reverse recovery charge	$Q_{rr}$		-	2.1	-	nC